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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/626,967	07/27/2000	Ayahito Kojima	1081.1093/JDH	1013

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EXAMINER

ALPHONSE, FRITZ

ART UNIT

PAPER NUMBER

2675

DATE MAILED: 03/13/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
09/626,967

Applicant(s)

Kojima et al.

Examiner

Fritz Alphonse

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Jul 27, 2000
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a) ☒ All b) ☐ Some* c) ☐ None of:

1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892) 18) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 19) ☐ Notice of Informal Patent Application (PTO-152)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ 20) ☐ Other:

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DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wakitani (U.S. Pat. No. 5,940,142) in view of Tajima (U.S. Pat. No. 6,222,512).

As to claims 1 and 5, Wakitani discloses a plasma display apparatus representing the luminance of one field in accordance with a combination of sub-frames (i.e.; sub-fields) which comprises: a data converter (103; fig.6) for converting input video data (8) into output data in which the ON/OFF states of the sub-fields are specified (fig. 7; col.12, lines 13-29, lines 45-56).

Wakitani does not explicitly teach that the sub-frames include a smaller luminance sub-frame having a luminance level which is lower than the minimum gray scale level of luminance. However, in the same field of endeavor, Tajima teaches that the gray scale level of luminance is indicated by higher bits in a sequence of sub-frames associated with smaller weights of luminance (col. 40, lines 52-65; col. 12, lines 30-40).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Wakitani by specifically providing a display device wherein the gray scale level of luminance is indicated by higher bits in a sequence of sub-frames associated

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with smaller weights of luminance, as disclosed by Tajima. Doing so, it becomes possible for Wakitani to prevent the generation of false colored contour caused by the occurrence of dark parts due to sub-frame separation occurring with a moving image, and which is capable of providing a high-quality image.

As to claim 2, Wakitani (fig. 6) shows a plasma display apparatus, wherein said data converter (103) has a plurality of conversion characteristics, and a desired conversion characteristic is selected in accordance with a mode set signal for selecting said plurality of conversion characteristics (col.12, lines 13-29).

As to claim 3, Wakitani does not teach a plasma display apparatus, wherein the input video data are supplied in accordance with a plurality of primary colors, and said conversion characteristics of said data converter are selectively determined for each of said primary colors. However, these limitations are clearly disclosed by Tajima (fig. 52, col. 39, lines 8-21). See the motivation above.

As to claim 4, Wakitani (fig. 6) discloses a plasma display apparatus wherein, the data converter (103) has a conversion characteristics in which an increase rate of the luminance of said output data in a first gray scale area for said input video data, differs from an increase rate of said luminance of said output data in a second gray scale area, whose luminance is higher than said first gray scale area (col. 12, lines 20-62).

As to claim 6, the claim has substantially the limitations of claim 1, therefore, it is analyzed as previously discussed in claim 1 above.

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As to claim 7, method claim 7 corresponds to apparatus claim 1, therefore, it is analyzed as previously discussed in claim 1 above.

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Tajima et al. (U.S. Pat. No. 5,818,419) discloses a display device for displaying a multiple-level gray scale picture through a frame having a plurality of sub-frames.

Hirakawa et al. (U.S. Pat. No. 6,097,358) discloses a method for driving an AC-driven PDP to produce gradation display.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fritz Alphonse whose telephone number is (703) 308-8534.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steve Saras, can be reached at (703) 305-9720.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

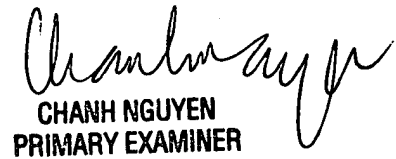
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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.


F. Alphonse

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March 7, 2002


CHANH NGUYEN
PRIMARY EXAMINER